AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

" *O fortunatos nimium sua si bona norint*
" *Agricolas.*" . . . . . VIRG.

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AGRICULTURE.

AN ADDRESS,

By CHARLES FISHER, to the *Rowan Agricultural Society*, at its meeting on the 4th of July, in the town of Salisbury, North Carolina.

Gentlemen : Believing that this Society, if conducted with prudence and spirit, will be the means of doing much good among the Farmers of the county, I cannot but feel myself highly honored by the station you have assigned me. If, in the discharge of my duties, I am unable to bring to your aid much talent or long experience, I can, nevertheless, with safety promise you constant attention and unremitting zeal. We all must see the wretched condition of agriculture as it exists among us, and anxiously wish for its amelioration. But this alone is not sufficient : we must *act ;* and to act with efficiency and success, our efforts must be made in concert. I know no plan bywhich this result can so well be produced as by the means of Agricultural Associations.

The benefits of such institutions in foreign countries as well as our own, have been fully realized. Writers inform us that the establishment of the board of agriculture in England, is the era, when English husbandry began to look up, and occupy that respectability to which it is entitled. At this day it has reached a high state of perfection, which has been effected principally by the means of agricultural societies.

The Northern States, being that part of our country where the population first filled up, we find them the first to throw off the habits and practices of the early settlers, and introduce a better state of things. Their lands, like ours at this time, were rapidly exhausting and becoming steril. Reflecting men saw the necessity of a change : but as no one or two individuals, in any neighborhood, could possibly accomplish this by their single example,—agricultural associations were resorted to as the only effectual means. Successful efforts were made to bring the farmers together in societies, and to engage their minds and their feelings in a general plan of improvement ; and wonderful has been the change produced in the appearance and condition of their agriculture. At this day, so evident are the advantages of agricultural societies, that they are every where coming into general sanction. We see the best farmers, and, in many instances, the most distinguished men in the nation, entering with zeal and spirit into these associations, and labouring to improve our agriculture, and exalt the farming interest of the country : men, that a few years ago, directed the destinies of this great republic, think it no disgrace now to aid in managing the concerns of a county society. Even the STATES, sensible of the importance, in a national point of view, of such institutions, have extended to them legislative support and patronage. In all the states they are incorporated, and in some of them liberally encouraged by pecuniary donations. For example, New-York, of all the states the most abounding in natural advantages, and the most munificent in internal policy, has taken a measure in favor of her agriculture that cannot fail of producing the greatest results. Her legislature, for the purpose of encouraging agriculture, has appropriated $20,000 to be divided (in two years) in due proportions among the agricultural societies in the various counties. By the same act, an Agricultural Board is established, to be composed of the Presidents of the different societies throughout the state, and to be held annually at the seat of government. This Board shall annually compile a volume from the archieves of the society,—1500 copies of which are to be published at the expense of the state. Here is an example worthy of imitation : but my object at present in mentioning this instance of liberality, is to show the light in which an ambitious and enlightened state to the north, views the agency of agricultural societies in advancing the great work of internal improvement. But, although New-York is the foremost in liberality, many of the other states are also pushing forward in the same race of improvement. Look to the North and to the South, and we see life and activity pervading the farming community : even in the West, in the new states, the farmers begin to turn their attention to systematic improvement. *We*, alone, continue lagging behind, dragging on the old way, without even a Farmer's society to excite our feelings or direct our energies. It is time that we should awaken from our slumbers of inactivity ; it is time that we should arouse ourselves from this lethargic indifference, and take some measures for the improvement of agriculture in this section of the country. And what plan can we adopt, better calculated to accomplish this end, than the one that has produced such happy results in other parts of the country,— *the formation of Societies among the Farmers ?*

One of the greatest advantages flowing from societies of this kind is, that they are the means of commencing among the farmers, at one and the same time, a general move towards systematic improvement. They, also, are the instruments of collecting into a common fund, the light and experience of many practical farmers, which is again diffused for the benefit of all. For Example, by our constitution, it is made the duty of each member to apply his attention as much as may be, to the different modes of cultivation ; and if, in the course of his practice, he makes any useful discoveries, or verifies any former experiments however small, he forthwith communicates them for the public good.

Another advantage is, we not only learn useful facts from each other, in our own vicinity, but by means of the society, we collect valuable and important information from other and more remote parts of the country. We open an intercourse with like associations, and with intelligent individuals, whose lights and experience will be a desirable acquisition to us of profitable knowledge.

But another, and perhaps the most important advantage that we shall realize from this society, will be the effects it will have upon our minds and feelings. It will awaken among ourselves and our brother farmers, a spirit of emulation ; it will set us to *thinking* and *inquiring ;* and this, of itself, will give a spring to our moral and physical capacities. There is nothing like exciting the human mind to action—like arousing it to inquiry and reflection ; give it but motives of excitement, and it will act, and will improve. For the purpose, then, of keeping alive a spirit of emulation among our farmers, we should, at stated periods, have Cattle Shows, and agricultural Exhibitions. We should encourage them by the bestowment of prizes and honorary premiums.

Having said thus much upon the advantages of agricultural societies, I will now, as briefly as possible, turn your attention to the state of agriculture as it exists among ourselves.

In looking round for the defects in our prevailing system of husbandry, one of the most striking is,—We pursue a course of cultivation that takes all from the earth, and returns nothing to it : We go on, year after year, tilling our fields, without any pains to return to the earth the strength that each crop takes from it. We completely exhaust our soil by an unvaried succession of crops ; and, when it can produce no longer, we turn it out into fields, let it wash into gullies, and grow up with pines, and broom sedge, that never failing sympton of exhaustion. This is the common fate of our fields ; the system that is defacing our country, and ruining our lands. How is it to be arrested ?—By stopping short in our present practices, and adopting in their stead the improving plan. It cannot be expected, on an occasion like this, that all the methods of improvement now in practice should be fully detailed : neither time nor qualifications could justify me in the attempt. But I may, in a few words say, that they all come under the head of *Manuring*. That course of cultivation which takes all from the earth and returns nothing to it, must prove a defective and ruinous one : all the plans, then, of improving land, if successful, must, in some way or other go upon the principle of returning strength and activity to the earth. Manuring is the end of them all. But there are several kinds of manuring, and different methods of applying them to the earth. I believe, however, manures generally have been classed under three heads : vegetable, atmospherical, and mineral.

Vegetable manure is the decomposition of all vegetable substances : stable-yard litter, straw and other offals of our crops are, with us, the common material of manure. In our sister state Virginia, corn stalks are made great use of for that purpose.

The atmosphere that surrounds us teems with matter that affords life and nourishment to all kinds of vegetation ; this is called atmospherical manure. How to extract this aliment from the air and convey it to the soil, is an important inquiry with agriculturists. The best plan yet practised, is that of enclosing, as connected with shifts of fields and rotation of crops. The principle of enclosing is, to suffer our fields to become thickly covered with rich vegetable substances, undisturbed by any kind of stock, and then, in proper season, to turn it under, where it soon rots and enriches the ground. In the northern states, the farmers regularly sow their fields down in clover, and when it reaches its perfection, plough it under. It is the opinion of some, that clover will not succeed thus far to the south ; but as far as my observation goes, the opinion is entirely erroneous.

The other kind of manure spoken of is mineral, such as gypsum, lime, &c. ; but these are scarce materials in our vicinity, and it would not be profitable to introduce them from a distance. Our main resource lies in the two first sorts ; and to these we should direct our attention.

It is a lamentable fact, that in our part of the country, the practice of manuring lands has been miserably neglected. Our farmers seem not duly to appreciate the value of manuring, or clearly to understand the best methods of collecting and managing it. Go to one of their stable yards, and you will see it scattering every where, evaporating in the sun, or washing off with the rains. How differently do judicious farmers act in other sections of the country ? They take as much care to make manure as to raise crops ; they use as much diligence to save their manure after it is made, as to save their crops. Go upon the farm of such a man, and you will find order, system, and economy visible every where. It ought to enter into the plan of every farmer annually to manure so many acres, such and such portions of his worn out land. To effect this would only require a little care and economy in the management of his affairs. To a farmer possessing an ordinary number of stock, it would be much easier to enrich a field of worn out land, than to prepare for the plough the same quan-

tity of new ground. If this be the case, how much more preferable is the one plan than the other. By reclaiming the old ground, you increase the value of your land, by making that good which before was useless; besides this, you save the timber of the new ground as well as much severe labour in clearing it. Let me here remark, that the saving of timber should begin to enter into the consideration of all land holders in this section of the country: by our wretched system of destruction, it is rapidly passing from the face of the land; and in another quarter of a century we may find it necessary to economize it even for fuel. It is not with us, as in many other places, where stone-coal abounds; of this substitute we have none or but little. The first settlers of a country are always prodigal of timber, because it is abundant, or rather, the great obstacle they have to surmount. We retain the habit of destroying timber after the reason of it has ceased to exist. How few of our farmers economize their wood land as they ought. Pass by the clearings, and the heart sickens at the waste and destruction. Even the thick coat of leaves that cover the ground, is raked into heaps and burnt; when, with very little more labour, they could be removed to the stable yard, where they would increase the stock of manure.

Another great error in our system of husbandry is that of *over-cropping*. We attempt to cultivate more than our manual force will justify. This is a capital defect in our practice, and until this is corrected, there can be no agricultural improvements. This practice, likewise, originated with the first settlers. When the country was first opened, such was the fertility of the soil, little more was required from the hands of the farmers than to sow the seed and it would come; but now cultivation is necessary. The farmer that over crops himself, must, in the *first* place, put his seed into the ground in a very slovenly and imperfect manner; in the *next* place, he can only half cultivate it. He must of necessity work part of his crop out of the proper time and season; some other part he scarcely works at all, until it becomes too late—the consequence is, he only makes half a crop. How much wiser would it be to prepare our grounds well, put out less, and cultivate them in a proper manner?

Nothing more strikingly exhibits the wretched state of our agriculture, than to compare the products of our soil with what is made at the north. There, it is considered poor cropping, unless their wheat turns out 25 to 30 bushels per acre; even 40 bushels are often made. Here, take the whole county of Rowan, and the average product to the acre is not 7½ bushels. The same may be said of every thing else that we raise.

Now, to what is this great difference owing? Not to the lands; for our soil, originally, was equal, if not superior, to theirs; nor is it as much owing to the climate as some would seem to think. No! it arises principally from the different conditions of our agriculture, and the different modes of management. We *overcrop* ourselves, take no pains to improve our lands, put our crops in badly, and tend them still worse. To avoid the error of putting out too much, every farmer should, before he commences preparing his grounds, consider well how many acres he can cultivate with the manual force at his command; and, in order that he may see his way clear, he should measure all his fields, so as to know the exact quantity of acres each contains. How differently do the most of us proceed: We *guess* at the number of acres put into cultivation, and, like all guess work, we generally fall wide of the mark. If any farther comment upon over-cropping were necessary, we need only, at this time, look through the county and view the spectacle. Here we see one farmer neglecting his corn, to get the grass out of his cotton; there another, suffering his wheat to fall for the want of cutting, in order to get over a certain piece of corn; and in how many places will we not see both corn and cotton completely brought under by the grass? I am aware, that the wet season of unusual length, is one cause of this; but the principal cause is, that the farmers have put out more than they can manage.

The next defect in our prevailing system, that I shall notice, is a deficiency in our farming implements. It is as impracticable for the farmer, as it is for the mechanic, to do good work with bad tools. Examine the tools of the greater number of our planters, and we need search for no other reason why our fields are only half cultivated. Look particularly at our *ploughs!* The plough is the most useful and efficient of the farming implements: it is the first instrument that enables man to bring to his aid, in the cultivation of the earth, the power and strength of the brute creation. Its form at first was rude and simple, consisting of but little more than the branch of a tree so shaped as to tear up the ground with one prong, while the other was hitched to the oxen. In the unenlightened regions of the east, the primitive plough is still made use of; but in our own country, no instrument of husbandry has been brought nearer to perfection. There are various kinds of ploughs suited to different purposes in farming: we hear of the Dagon, or Cary; the Freeborn, and several others; but we take no pains to procure models and try them. We go on in the habits and with the ploughs of the first settlers, regardless of what is passing around us in the way of improvement. If we wish to ameliorate our condition, we must open our eyes and learn from the experience of others. Nothing so much retards the progress of improvement as prejudices, and the attachment to old habits. Such is the influence of prejudice, that in an obscure corner of Europe, the people still plough by fastening that instrument to the cattle's tails. *We* are not quite that bad—but really, within a few years, I have known considerable planters, instead of iron traces, make use of grape vines and hickory withes. What false economy! what miserable management! But it is not only necessary that we should have good tools, in order to do good work; we should also take care of these tools. In this particular, the greater part of our farmers are culpably negligent. Go to one of their farms, and you may see a plough lying in this fence corner—in that a hoe; here one thing, and there another? What is the consequence? When these tools are wanting, much time is lost in searching them up, and it often happens that some of them are not found at all! To avoid this, every farmer should have some place set apart where the tools, when not in use, could be brought and laid away safe from the weather, and always near at hand. There is nothing like a little forethought in a farmer; it is always attended with economy in the employment of time, and the management of business. A farmer that looks before him, is seldom over-hurried in his work, and is never idle for the want of employment. Even rainy days he knows how to spend to good purpose; at such times he repairs his tools, and fits them for use, or he finds some other useful employment.

Another defect that I shall notice, is in the raising and management of live stock. Is it not a fact, highly discreditable to the large, populous, and wealthy county of Rowan, that it cannot supply itself with beef? For the past 8 or 10 years, not fewer than between 2 and 300 beeves, in each season, have been brought from the upper counties and slaughtered for the market of this small town. In exchange for these, no kind of produce is taken—cash alone is paid. If every farmer in the county would so attend to his stock as to sell one beef annually, the money that now goes to the mountains, would remain and circulate among us. But before we can promise ourselves much improvement in our stock of cattle, two things must take place—*first*, a change in the breed of our cattle—*secondly*, a change in our present mode of keeping and treating them. Time will not allow me to dwell upon either of these heads. I will, however, suggest the propriety of our adopting proper means to procure some of the improved breeds so much extolled in the states north of this; these, crossed with the best of our present stock, might produce valuable results. As connected with this subject, I will add a few words upon the business of the dairy. Without the hazard of refutation, I may say, that there is not at this day, a first rate milch cow in the county of Rowan; nor will there be, until an entire change takes place in our system of management. I know persons who milk from 8 to 10 cows, that do not average one gallon each; when, with proper care and attention, the same quantity of milk might be obtained from fewer than half of the number. We should keep few cows feed them regularly, and shelter them from the rigor and inclemency of the weather. *One* cow, well taken care of, will supply more milk than *three* badly kept; and the expense of feeding will by no means increase in the same proportion. We hear of cows giving from 20 to 30 quarts of milk per day; we scarcely credit such statements, because we have none ourselves; but nevertheless it is true.

But I leave this part of the subject to make a few remarks on that of hogs. Our breed of hogs is much better than that of neat cattle; in fact, we have several kinds of hogs valuable for their hardy and thriving qualities. The Chinese hog has lately been introduced into the county; whether it will prove a valuable acquisition, I cannot say. In Pennsylvania they are only esteemed for the purpose of crossing with other breeds; and it is probable, in this way alone, will they be valuable to us. But if our swine are good, and our bacon hams excellent, it must be confessed that our plan of feeding for slaughter, is not only *wasteful*, but wretched in other respects. The common practice is to make a pen of fence rails, so as to take in running water; in this, all the hogs intended for the knife, are put, and the corn is thrown in to them in the ears. The first rain that comes converts the whole surface of the pen into a perfect quagmire, and the poor animals have to root in mud up to their eyes, for their food. The hog is of a hot and thirsty nature, but it is not an amphibious animal—it cannot thrive well in mud and water. For the sake of experiment, let a few hogs be placed in a pen which shall be kept dry and shielded from the wet and cold; take a like number in the same plight and condition, and throw them into a common mud-pen; let the same quantity of food be given to each parcel, and the result will be such as to convince the most obstinate of the folly and inhumanity of the present practice.

If we are deficient in our attention to the management of cattle, we are still more so in raising that valuable animal the sheep. We are told that sheep, in the northern states, yield from 6 to 12 pounds of wool at one shearing. Our flocks do not average more than 1½ to 2 pounds to the head. This great disparity must arise, as well from the quality of our sheep, as from the little care and attention we bestow upon them: in both of these particulars we must introduce changes before we can expect much improvement.

The making of fences is one of the greatest drawbacks on farmers in this section of the country: it consumes much time, requires much labour, and destroys much timber; but good fences insure the safety of the crop, and add much to the appearance of the farm. Let us once get into the enclosing plan, and there will be less fencing required; even now many of our middle fences might be dispensed with. The Society ought to encourage the raising of hedges: Their introduction will form an era in our agricultural history. They not only answer every purpose of rail fences, but they are more durable; they are ornamental, and contribute very much to set off a farm. The cedar and white thorn are likely the best materials in our reach. Instead of middle fences, if we were to divide our fields with hedges, it would soon answer every purpose, and have a very striking effect.

When the western part of N. Carolina was first settled, it was surpassed in fair prospects by none of the new countries. The old inhabitants still recollect its towering forests, its luxuriant range of grass, cane and pea vine, abounding every where. Its fame spread back to the north, and the tide of emigration was set in this direction. Pennsylvania, New-Jersey, Maryland, and Virginia, poured thither their popula-

tion to take possession of the new land of promise But all is now changed. One half century has brought about a wonderful revolution. The descendants of those who flowed here from the north, are now passing off in crowds to the west. To what is this owing? Surely, in a great measure, to a deterioration in the appearance and condition of our country, effected, altogether, by our wretched, destroying, and murdering system of cultivation. The only way to check this emigration is to improve our lands and increase the profits of agriculture. I do not pretend to assert, that the most perfect condition of agriculture would keep all from moving. No! there is something in the spirit of the American people, that impels them towards the forest. The current is set to the west; it will flow on: The Mississippi river could not stop it—the stony mountains will furnish no barrier. As long as there are new countries in prospect, our people will move on until the waters of the Pacific stop their march. But, if we cannot stop it, we may check it; we may, in a measure, remove one of the causes of emigration; an emigration that is draining us of our people and wealth. Upon a fair principle of calculation, North-Carolina, in the last ten years, should have increased in its population 200,000 souls; but, from the returns of the census just completed, it would seem that our population has only gained about 70,000 souls. Where are the rest? *Gone in search of better lands beyond the mountains!*

But although half deserted, our country is still a delightful one. We have a fine climate,—pure air,—a soil susceptible of the highest improvement, and fitted to the products of every part of the Union We live on a kind of middle ground, where the staple of the North and the South meet together in the same fields, and flourish in social proximity. All that we want is an improved state of husbandry, and a market for our products. Every state in the Union is pressing forward in the great race of improvement. Every class of the community is looking to its own interest The merchants are uniting in every scheme to enlarge the circle of commerce, and multiply its gains; the manufacturers are making powerful efforts to exalt their interests, even on the ruins of all others; but the farmers alone, seem careless and indifferent. Above all, the farmers of this part of the country are heedless and unmindful of what is passing around them; of their own character and interest, and the character and interest of the state. If we go on many years longer in this way, our agriculture will become still more wretched, and our population will leave us in search of better prospects in the West. Self interest, then, pride and patriotism, all demand our exertions in the cause of improvement; and let it be hoped, the formation of this Society is a proof that the call will not be made altogether in vain.

THE BEST TIME TO FELL TIMBER.

Washington, July 31st, 1821.

DEAR SIR—

I have received your favour of yesterday, asking of me, as a member of the Agricultural Society of Maryland, a communication for your Journal, on "the proper season for felling Timber, with a view to its durability"—and I shall take pleasure in complying with your wishes, as far and as well as my official duties will permit, and my observation enable me The one, will necessarily require me to be brief; the other, I fear is too limited to add much to the mass of information which is embodied in the Farmer.

It will readily occur to you, that the life of man is insufficient to determine, from actual experiment, the question propounded; and the short period that my attention has been directed to agriculture, or to any subjects connected with its objects, could not admit of any reasonable conclusions founded on experiments, had they been made, which has not been the case to any extent. I am compelled, therefore, to reason from analogy, to resort to facts, having their origin at a much earlier date, and to avail myself of the knowledge and experience of others, in support of my opinion—which is, that "the most proper season for felling timber, with a view to its durability," is in the winter, when the sap has ceased to circulate; and, that the extent of this season is regulated by the climate, where the timber is to be cut. In northern latitudes, it commences earlier and continues later than in southern; but, in all cases it is requisite that the sap shall have ceased to flow, in order that the timber, when cut shall be as free from moisture as possible: universal experience teaching us that all substances in a dry state, are less liable to decomposition, or more durable, than those which are charged with moisture.

The influence of the sun, acting on vegetables, causes an accession of sap, and an enlargement of their parts; and if cut while in a state of rapid increase, they are, from the want of firmness, as well as from superabundant moisture, more liable to decay, than when cut after they arrive to maturity. This may be proved by our corn stalks, hemp, the straw of wheat, rye, and every other grain; all, of very rapid decay when cut in a green state, and very durable when arrived at maturity.

A Tree may be said to arrive at maturity every season. In the spring, the process of vegetation commences; and in the winter, it is at maturity and as fitting for the uses of man, as regards its durability, as it can ever be. During a state of rapid vegetation, it partakes of the perishable nature of all other plants; and its decay is more or less rapid in proportion to the sap which it may retain. Thus, willow, poplar, or maple trees are not found to be as durable as locust, cedar, or live oak; those being as remarkable for the quantity of the sap contained in them, as these are for their dryness. Trees of rapid growth being very porous and almost universally surcharged with sap, decay rapidly, while those of slow growth and close texture are found to be very durable. The first, no one thinks of using for any purpose requiring durability; while the properties of the other are known and appreciated by all: their value seems to be proportioned to the greater or less degree of moisture which they naturally retain. If then, universal experience informs us that sap is destructive of, and dryness favorable to durability; it follows, that the winter season must be the most proper time to cut timber "with a view to its durability," as it will not be denied that all trees are at that period more devoid of sap, than when in a state of rapid vegetation. Whether the sap descends to the root, or goes toward the formation of the tree, is of little consequence to us; it is sufficient that the moisture is disposed of, and that the tree is at maturity.

The sap is in most cases of a very acid nature, nourishing to the tree while this is in health, but destructive to the fibre of the wood when in a state of fermentation. In the winter season this fermentation, as well from temperature, as from the diminished quantity of the sap, does not take place. In the summer season it is hastened by the intensity of the heat, and its effects are proportioned to the quantity of sap: thus, a cabbage will rot sooner in summer than in winter, and this remark will apply, it is believed with equal force, to all other vegetables, from a live oak to an asparagus shoot.

That the sap rises in the spring, no one can doubt; and that it rises by the wood vessels, and descends by the bark has been sufficiently proved by various experiments made to ascertain these facts. What new changes it undergoes in the course of its circulation, I am not aware of, but part is undoubtedly subtracted to form the wood; and the thinner and more perishable parts are carried back by the bark, to return with a fresh supply of nourishment to the tree; through all the veins and arteries of which it is destined to move like the blood in the human body, giving to it health, and strength, and growth.

During the summer, while in rapid circulation, it necessarily follows that the thick and thinner particles of sap are commingled in the body of a tree, the part required for useful purposes; and it is not until the sap ceases to flow, that the thinner parts are taken up by the bark, the part of all others the most liable to decay.

Sir Humphrey Davy, has satisfactorily determined this question, respecting the circulation of the sap; the one, which in my opinion, should regulate us in preparing all timber requiring durability. He formed rings, by cutting the bark from the trunks and limbs of trees, without wounding the wood. The result, invariably, was the rapid enlargement of the upper part, and in some cases the formation of an annulus, by the upper part of the bark descending to unite with the lower. From experiments made by myself, I find a peach tree is as well suited to satisfy the mind on this point as any other, for the gum, not being liable to dry up, oozes from the upper bark, and shows very clearly the course of circulation. On this experiment it has also been frequently discovered that the sap, not being able to return to the root, prematurely forces out fruit from the limb; but this generally proves fatal to it the succeeding year, by reason of the superabundant sap.

All who are curious in these matters, I beg leave to refer to Davy's agricultural chymistry, and various other works on this subject, as my time will not permit, and the occasion does not call for further details.

It now remains for me to present some facts in support of my opinion, and in doing so as I before observed, I shall be necessarily driven to authority other than my own. I shall not confine myself altogether to agricultural information, because a successful mode of preparing timber for Naval purposes, will answer equally as well for the purposes of agriculturists; provided, the means of doing so are by them attainable, and the expense attending it unexceptionable. Your inquiry only goes to "the *proper season for felling timber*, with views to its durability"; but in this investigation, I shall be compelled to examine other modes of arriving at this object.

It has been stated, that the sun and seasons have an influence on the rise of the sap; that the sap like all other moisture, is deliterious to wood; and that in a certain state it is particularly pernicious; but there is another influence, nearly if not quite as powerful as the sun, which operates in winter as well as in summer, and is particularly evident in vegetables of rapid growth, such as turnips, radishes, lettuce, &c. &c. I mean the influence of the moon. And before I am deemed a visionary being by your readers, let me ask why that body whose attractions can raise the tides, and influence all animal creation, should not have the power to put the sap of vegetables into circulation, assisted as it is by capillary attraction. Let those who doubt it, satisfy themselves. Let them sow some radish seed on the increase of the moon, and some on the decrease, and they will find that the first will shoot up above the ground, and the second will grow down into the ground: nay, so well known is this fact to the gardeners of Louisiana, that in the first period, seeds are invariably sown to produce vegetables, valuable for their leaves; and the second to sow those which are cultivated for their roots; and so well, also, are they convinced of its influence in England, the birth place of him who proved the powerful effect of the moon on the tides, *that in all their contracts for timber for Naval purposes*, this influence on the sap is more guarded against than any other. More attention is paid to the time of the moon when timber shall be cut, than to the season of the year.

If then, influences of this nature extend through the vegetable creation; if it is operated on by general and not by partial laws: if the influence of the moon will cause a radish to shoot up from the ground, or its absence allow it to shoot down, it would seem that the period of the moon, as well as the season of the year, should regulate the cutting of timber when it is required to be durable. To some persons it has been a matter of much surprise that different pieces of the same kind of timber, cut in the summer season should not decay with equal rapidity; and also, why that cut in the winter should not all be equally durable; perhaps, a reference to lunar influence might account for the difference observed.

Dryness is favourable, and moisture unfavourable to the durability of timber; it should therefore not only be dry when cut, but be kept so when in use. Timber, if saturated with sap at the time of being cut,

it becomes when seasoned very porous, fit to retain whatever moisture it may afterwards be subjected to, and liable to be operated on by the principle most hostile to its durability; whereas, the reverse is the case with timber that is felled in the winter season, when the tree is devoid of sap, its fibre close, and its texture firm.

Artificial means are sometimes used to produce what ought to have been left to nature—and because the heat of fire is employed to shrink and season timber cut in the summer months, for the purpose of rendering it more durable; the same is resorted to by those who cut their timber under the most favorable circumstances. Burning the buts of posts is an almost invariable practice, and, although it may be in some cases more beneficial than in others, still it can never be injurious.—In some nations this practice is resorted to, for the preservation of ship timber; the ends of the beams are chared by fire, as well as the knees used to secure the others. Various as may be the practices of different nations on this subject, they all lead to one conclusion—which is, that dryness is beneficial, and moisture destructive to timber. This principle governs our practice on a more extensive scale than any other; and, as upon the adoption of means to keep our ships dry, we rely for their preservation, we are now building houses over all of them, to screen them from the winter's snow, and summer's rain. An opinion once prevailed, that immersion in water, to soak out the sap, was the best means of preserving timber—but this idea seems gradually to have yielded to more rational opinions; and, that perfect dryness is better than the adoption of one evil to get clear of another, scarcely now admits of a doubt. That water will preserve timber for an almost interminable time, if constantly immersed, I do not deny; but its decay, on being exposed to the air, will be rapid in proportion to the time of immersion; for, although it may be divested of the deleterious sap, it will have absorbed that which is scarcely less injurious.

You enquire of me as to the best means of preserving timber; but this depends on more causes than the influence of the sun and moon, and the season of cutting, for much depends on arrangements. In the ship-yards of France, it is the invariable practice to place timber under sheds, resting the logs on their ends, to facilitate the escape of the sap This is the only position that posts, for fences, can be placed in; but I may be permitted to offer a few remarks upon the manner of placing rails

A tree, when sawed across the but, exhibits a number of circles, which are called annual circles, it being believed that the tree has one for every year of its growth. These circles are formed of hard imporous wood, and between them is a soft spongy substance, the one impervious to water, the other calculated to absorb it rapidly. When a tree is split for rails, it is divided into sections, having the bark on one side, and the two others terminating at the heart or centre. The position then invariably given to the rail, wherever I have been, is, to put the bark side down, and the heart angle up; the consequence is, that the rains and dews which fall on it, are absorbed by the spongy substance between the circles, and carried down into the hollow formed by them, and from whence they have no escape but by rotting and soaking through to the sap and bark on the lower side In the course of time, the rail, by its own weight and increased weakness, sinks in the middle, an accession of moisture hastens its decay at that spot, where, in a short time, it breaks. Now reverse the thing—place the rail with the heart side down, and the bark up—the rail is then protected by a kind of projecting roof, formed by the bark side; the cups formed by the annual circles, will empty out instead of holding moisture—and the whole rail will be without impairing its strength, placed in a situation the most favorable for its preservation. This principle of protecting timber by means of its annual circles, should be strictly attended to, in all dispositions made of it, for you will readily perceive how a plank, for instance, may be nailed on, so as to turn off or absorb water by means of them; and, in laying floors, you will see at once the difference of laying the heart side up or down.

It is reasonable enough to believe, that timber cut at the most favorable season, is not entirely devoid of the principles of its destruction, and as its decay must be more or less rapid, in proportion to their quantity, a necessity for neutralizing or destroying them, for the preservation of it exists. This is attempted in various ways—some try to effect it, as has been already shewn by charing, others by immersion; but salt is resorted to, by us, as a general preservative. The immense value of our ships, compared with any other object, will justify this expensive and most effectual measure, yet resorted to, as is proved by an examination of our older ships; but, its application to the preservation of materials for farming purposes, might not be convenient, or justifiable by the smaller value of the article to be preserved; for it will not be denied, that if the means used to preserve will cost more than the article, it would be wisest to renew this, when decayed or worn out. A simple and cheap mode however does exist, for the preservation of timber, against the destructive properties of this foe to its durability—it is one resorted to by us, when salt cannot be applied, and it is perfectly applicable to farming purposes; I mean white washing with lime. It would be affectation in me to attempt to show the chemical process by which lime produces this effect—an attempt at a display of learning in this discussion, either in botany or chemistry would only render my ignorance of those sciences manifest—nor does your call on me warrant the attempt.

It is well known that alcalies, of which lime is one, are the enemies of acids—and that white is a repellent of light and heat.

The object of housing timber for its preservation, is to secure it from the effect of the moisture which insinuates itself into the rents and cracks, which an exposure to heat and light occasion.

A piece of furniture, which may be preserved for ages under cover, would be ruined by a few days exposure to the sun, as it would be cracked and rent; and a continuance of the exposure of it to the sun and rains, would occasion it to rot.

Lime unites in itself, to a certain extent, the advantages of housing and salt; the one, protecting the timber from the injurious effect of the sun; the other destroying the acid which may remain in the wood, after every precaution to guard against it has been used.

The effects of rains and dews must be guarded against by so arranging the annual circles, as to make every piece contribute towards its own protection.

To state all of the facts which I could adduce in support of these opinions, would be to swell this paper to an inconvenient length—every reader will be able to judge by his own observation, whether my reasoning is well or ill founded; and, did the occasion even call for it, I could not now be more diffused, as I am under the necessity of leaving this place for Norfolk, on public service, to-morrow morning; but should any thing further suggest itself to my mind, connected with this subject, which is one of the highest interest to farmers, I will take pleasure in communicating it—and I shall be happy if these hasty remarks, thrown together without arrangement, or any reference but to my own recollections, be of any utility.

With sentiments of respect and esteem,

Your obedient servant,

D. PORTER.

J. S. Skinner, Esq.

ON MANURES.

The committee on manures, in obedience to the direction of the Pendleton Agricultural Society of South Carolina, at their last meeting, beg leave respectfully to submit the following

REPORT:

July 9th, 1818.

Aware of the great importance of the subject, and of the difficulty of arranging a system, at once simple and efficient, your committee have felt themselves embarrassed byanother consideration of a painful nature. A conviction that an incompetent discharge of their duty may lead their fellow citizens into errors and losses, and endanger the reputation of a system on which all good farming is founded, and which, when judiciously prosecuted, has always been attended with the most beneficial effects. Your committee however, have not suffered themselves to be deterred, even by this consideration, from uniting their most zealous efforts in so good a cause; trusting to superior wisdom for a happy issue, they will only add, that the subsequent recommendations are founded either on their own knowledge and experience, or derived from the best and latest authorities, to which they have had access.

Before entering upon the subject of their immediate duty, your committee would earnestly recommend to their brother farmers to examine and ascertain precisely, the nature of the soil which is to be the subject of improvement. In the vegetable, as in the physical world, the nature of the defect should be completely understood, in order to adopt the appropriate remedy; and as our fields not only differ materially, but are even sometimes of an opposite quality, it is evident that a very judicious course of management for one field, may be extremely pernicious for another.

Believing this point to be of primary importance, your committee will endeavour to assist the judgment, by enumerating the different soils of this district, as far as they are acquainted with them; for this purpose it will be sufficient at present to consider them under three divisions:

First: Stiff clay soils, generally red, with more or less sandy vegetable earth on the surface.

This soil is mostly sterile, after a few years of cultivation in the ordinary way; but as one principal cause of its sterility is its adhesion, and as clay is known to contain a great portion of the food of plants, it follows that the first step towards improvement, is to destroy its adhesive quality, in order to enable its fertile particles to act. To accomplish this object, clay soils should be mixed with such particles as tend to open them and break the cohesion of their parts; when this is accomplished, this land becomes highly valuable, retaining manures for a length of time, and with good management will never return to its former state. Among other substances proper to be mixed with this soil, may be enumerated sand or gravel, ashes, sawdust from mills, rubbish from old buildings or yards, straw, stubble, rotten wood, burnt clay, farm yard manure, and gypsum, or plaster of paris. Tanner's bark, and substances which promote a strong fermentation, are peculiarly excellent, and it is believed that a mixture of any or of all of the above mentioned substances, in a composed heap, would triple the product of such land, if properly ploughed in and brought into good tilth by the plough and harrow.

The second division may be called a loamy soil. This kind of earth is less cohesive and more fertile than the former, and is composed of sand, clay, and an oily vegetable substance, with a substratum of red clay at some depth, on uplands, and generally of bluish clay on river or creek bottoms. These latter are generally admitted to be so fertile as to require little aid from manures; but the uplands after a few years cultivation will require a compost of stable manure, sand and vegetable rubbish, to break the tenacity, and recruit the poverty which successive crops will produce. Loads of mud and decaying leaves, hauled from creeks and stagnant pools, are very highly recommended for this soil, and the proportion of sand or gravel should be increased as the land becomes more stiff.

The third division will comprise light sandy soils, with an ash coloured mould at top. This soil is more porous and open than those which we have considered. It receives moisture with great facility, but parts with it as easily. To improve this soil, clayey loamy earth must be spread over it, and composts of animal and vegetable substances; but all light sandy particles must be carefully avoided. This kind of earth is the only one in this district, which will bear what "Arator" calls, "the American custom of penning," as the treading of animals imparts a firmness to the soil which in a great measure will prevent the continual evaperation of moisture, while it receives great benefit from their manure.

Your committee having thus briefly endeavoured, (by the classification of the great bulk of the farms of this district,) to erect some standard by which an intelligent farmer may correctly ascertain the nature of his soil, its defects, and their appropriate remedy, will proceed to the subject immediately committed to them; the collection and application of manures.

All the manures which can be used in this district, may be classed under four heads: animal, vegetable, compound, and fossil.

Animal manure, by which we at present mean, the dung of horses, cattle, sheep, and hogs, with the refuse of the poultry yard, is one of the most powerful manures that can be applied to the soil, and the most approved modern writers strongly recommend that it be immediately buried beneath the surface, there to undergo its putrificative process, that the earth above may be benefitted by the ammoniacal gas which it evolves in its decomposition. The dung of horses, hogs, and poultry, on account of its great tendency to fermentation and putrefaction, is best adapted to cold, stiff, and clayey soils; while that of cattle may be most beneficially applied to warmer soils. On sandy porous soil, cattle may be confined by a temporary fence, on a strip of land, which being removed at a given time, (according to the number confined thereon,) their dung should be immediately ploughed under, that it may not be exposed to the action of the sun, or of rain. But as nine tenths of the farms of this country, would be materially injured by the poaching of the soil; and as very few of our farmers keep a sufficient stock to improve any quantity of land, in any way, by animal manure alone, your committee will not detain you longer on this head, but will proceed to the consideration of the second class, or vegetable manure.

In this division, we comprehend either green plants turned under by the plough while growing, or parts of vegetables, after they have been decomposed or burnt, with their ashes roots and fibres.

The only experience your committee themselves have had of ploughing under any vegetable substance standing on the soil, is the case of ploughing in stubble. This practice has for a number of years been performed on cold, stiff, blue clay river bottom land, from which a succession of the same crops for perhaps seventy years, hud worn away all the top or vegetable earth. This practice has always been attended with beneficial results; for though the stubble is a long time in decomposing, and affords but little soluble matter for the food of plants, yet the tenacity of the soil is always broken and a considerable degree of *tilth* produced, enabling the fibrous roots of the plants to penetrate in all directions in search of their food.

But if dry stubble ploughed under, produces such happy results, how much greater would be the benefit, if a green crop, in full luxuriance, in the season of its blossoms, were treated in a similar manner? The interior woody fibre of the vegetable, taking a longer time to decompose would have the same effect as the stubble, of opening the soil, while the juicy bark and leaves, speedily undergoing the putrifactive process in the earth, would impart a richness and fertility to the soil, which would amply repay the little labour and expense that would be incurred. Lord Kaimes objects to ploughing under green vegetable crops, merelyb ecause the vegetables commonly used for this purpose, are proper food for animals, and he conceives that the best way of converting it into manure, is to pass it through the body of an animal, which which will increase its value, while the dung and urine will enrich his soil more than ploughing under the green crop. Your committee will indulge themselves in two remarks on this objection. The first is, that so little labour and expense is required in seeding and the two ploughings required by the vegetable system, that any common industrious farmer may sow one field for feeding and others for turning under, and if the green vegetables are to be cut, and carried perhaps some distance, to the stalls and sheds, to prevent poaching, this continued daily labor will make it the most expensive mode. The other and stronger objection to Lord Kaimes' plan, is that few, if any of our farmers keep a stock sufficiently large to manure any quantity of land, by the dung of animals alone, while the vegetable system manures the whole field at once, and equally.

Sir Humphrey Davy, in his lectures on agricultural chemistry, observes, that "all green succulent plants contain saccharine or mucillaginous matter, with woody fibres, and readily ferment. When they are to be employed for enriching a soil, they should be ploughed in when in blossom, for it is at this period that they contain the largest quantity of easily soluble matter, and that their leaves are most active in forming nutritive matter. Green crops, pond weeds, or any kind of fresh vegetable matter, require no preparation to fit them for manure. The decomposition slowly proceeds beneath the soil: the soluble matters are gradually dissolved, and the slight fermentation that goes on, checked by the want of a free communication of air, tends to render the woody fibre soluble, without occasioning the rapid dissipation of elastic matter." In speaking of dry straw, the same author states, that when it is made to ferment it becomes a more manageable manure, and that it is usual to carry it to the dung hill for this purpose; but he says, "it *is worth experiment*, whether it may not be more economically applied, when chopped small by a proper machine, and kept dry till it is ploughed in for the use of a crop. In this case, though it would decompose much more slowly, and produce less effect at first, yet its influence would be much more lasting."

On this latter point, of dry straw, it is sufficient to remark, that this celebrated chemist does not positively recommend that it be ploughed in without undergoing fermentation; he states it as a subject of doubt, and *worth experiment*, and only believes it to be more economical. He has himself given us the result of an experiment of his own, which should teach us that the only use of applying dry chopped straw, would be the opening a stiff soil. In the very same page from which the above recommendation is extracted, he says, that from "400 grs. of dry barley straw, I obtained 8 grs. of matter soluble in water, which had a brown colour, and *tasted like mucilage*." From 400 grs. of wheat straw, he obtained only 5 grains of a similar substance. This experiment sufficiently demonstrates, that there can be no comparison between mere woody dry fibre, and the succulent luxuriance of a vegetable in full sap; but *should* any further elucidation be wanted, we have, in the very next page of the same author, a fact which ought to satisfy the most sceptical. It is in these words, "Woody fibre will not ferment, unless some substances are mixed with it, which act the *same* part as the mucilage, sugar, and extractive or albuminous matters, *with which it is usually associated in herbs and succulent vegetables.*"

For precision and accuracy in chemical experiments, Sir Hnmphrey Davy may be safely trusted; but your committee cannot believe he was a good farmer. Indeed most of his experiments, instead of being applied to the valuable productions of the field, were made on "mint" and "primroses," in his garden.

Your committee have read with much pleasure, two small agricultural tracts, published by Mr. Matthew Peters, and recommend them to the attention of the Society, particularly those parts which relate to the subject now under consideration. These works, "The Rational Farmer," and "Winter Riches," contain many valuable hints on all subjects connected with husbandry; but he appears to be most intelligent and zealous on the subject of the vegetable manures, at equal war with both hot and short muck farmers. He goes on so far as to say that all animal and compound manures

should be excluded from tillage land, and should be applied to meadow and pasture alone. Two of his reasons are so strong, as to carry conviction of their truth, while others are so plausible, as to invite the experiments of all farmers. The former may be stated briefly to be. first, the comparative facility with which a whole field may be manured at once; and secondly, the exemption from weeds, slugs, trash and vermin, which farm-yard manure never fails to introduce. Your committee, in the absence of their own personal experience on this subject, will briefly state his mode of bringing a field into good tilth and fertility, and it is worthy of remark, that his soil resembles that of far the greater part of our farms.

About the 1st of October, he breaks up a stiff field, and sows, pretty thick, turnips and barley, or rye and oats, (in all cases of turnip sowing, he mixes one quart of radish seed with four quarts of turnip.) This crop is sown on land, ridged for winter fallow. In February you may put in ewes and lambs. In April or May this vegetable crop is turned completely under, with a proper plough, and on the furrow he sows buckwheat, turnips, and vetches, any or all (but a mixture seems preferable,) and harrows them in lightly. Thus you have one crop of vegetable manure under furrow, while another is growing above it. The end of July, or beginning of August, he turns under this second crop as before, and the end of September his field is ready for wheat.

This is perhaps too brief an analysis of his mode, a continuance of which he strongly recommends, and in conclusion he calls on all farmers, with the consciousness of all agricultural integrity, to throw aside the worn-out thread-bare garment of ignorance and perverseness, and to consider the advantages arising from two vegetable manurings, and a sprinkling of sheep manure, performing their putrifactive office within the soil, and keeping therein all their native salts and fertile oily juice, with only three ploughings.

Your committee though inexperienced on this subject, cannot avoid recommending to this Society, the adoption of a plan on principles similar to those of Mr. Peters. The end of September, any of the following seed, or a mixture of them, as judgment may dictate, should be sown, on one ploughing and harrowing in: turnips, barley, Egyptian oats, rye, Hanover turnip, or any other succulent vegetable, not usually injured by frost. In the yeaning season your ewes and lambs, and young calves may be pastured on it without injury. The end of April or beginning of May, this vegetable crop should be neatly turned, three to five inches deep, with a good bar share and two horses, having previously rolled it. Immediately on this furrow, any or a mixture of any of the following seeds should be sown, and harrowed in, so as not to bring up the under part of the furrow just turned. Buckwheat, vetches, or tares, turnips, cabbage seed, peas, chickory, and in general, all luxuriant, juicy vegetables. The first of August this second crop should be rolled, and neatly turned under; and if wheat, barley, or Egyptian oats are to be the crop for the ensuing year, they may be sown any time in September, or first half of October, taking great care *so to* water furrow your field, as to cause as little washing as possible. Should this field be wanted for corn, the next spring, it is recommended to sow it with turnip and radish in September, and your cattle hogs and sheep may be fed with the turnips in winter, and the field be broken up for corn the end of March.

All clover and other grass lays have long been used with unvarying success, as a vegetable manure. Their direct effect is to open and divide the soil by their woody fibre and roots, and to enrich it with their mucilaginous substances, which are easily soluble in water. Old pasture fields should be suffered to grow up or some time previous to being turned in, that a larger portion of vegetable matter may be imparted to the soil. It is not uncommon to see some worn out fields, thrown out of cultivation on account of their sterility, growing up in rag weed; the farmer of good judgment, keeping stock of every kind out, would turn under these weeds, before the seed begins to form. This process would encourage a more vigorous growth on the land, which should be treated in the same manner, and if he would but assist the benevolent designs of nature, and sow down a winter vegetable crop, the poorest soils would be restored to a state of fertility. Let the farmer who is afraid of a little trouble, compare the labor and expense of a few ploughings, with all the heavy and laborious operations necessary in clearing new lands, and placing it in good order to receive seed; and he will find it less laborious to improve twenty acres of his worn out home fields, than to clear two. This calculation is within the reach of any one.

The ashes of all vegetables is an exceedingly useful manure, particularly to low wet and stiff soils. The vegetable alkali contained in them, gives solubility to all vegetable substances, and from its strong attraction for water, may tend to give some degree of moisture to the soil, or to other manures; on this latter account it is of great service, properly mixed in a composted heap.

There are many other vegetable substances which may, with success, be used in restoring worn out tillage land, but as most, if not all of them, may with far greater effects be transferred to the compost heap. your committee will proceed to the consideration of the third division, or compound manures.

Sir Humphrey Davy informs us, that all vegetable and animal substances are consumed in vegetation, but they can only nourish a plant by affording matter soluble in water, or gaseous substances capable of being absorbed by the plants. This great principle appears to be confirmed by several of his experiments, and is probably as correct an account of *the food* of plants, as we are likely to obtain. We know that all dead animal or vegetable matter, if sufficiently divided, spontaneously undergoes a process; which brings it at length to be a fat greasy earth, which we call rich loam, or garden mould. The woody fibre of vegetables is longer in undergoing this process, but its texture is at last broken down, and it is resolved into new elements. Animals' matter, therefore, and the mucilaginous parts of vegetables being more liable to decompose than dry woody fibre, their mixture is evidently required by their nature, and hence the origin and necessity of compost heaps.

With regard to the fermentation of compost heaps, by attending to the foreging principle, we learn that whenever they are composed of substances easily soluble in water, or easily disengaging their gasses or vapours, their fermentation or putrefaction should be prevented as much as possible: and on the contrary, when they consist of woody fibre, and insoluble substances, such matters should be added to them as tend to promote fermentation. By attending to this simple principle, the farmer will be at no loss to prepare and manage his manure so as to make it most extensively useful.

Your committee having often had occasion themselves, to complain of the want of detailed, precise, and specific directions, in justly celebrated authors, will endeavor to avoid this reproach while they proceed to recommend the best method within their knowledge of forming this most essential requisite on every farm—a compost heap. The principles have been already stated; the practice is founded on them, and a small share of industry and judgment is alone requisite to give it the most beneficial results.

A Bountiful Providence has placed every where, substances which form a manure for the soil; but man must not expect to set still, and that manna will drop into his mouth. His faculties and reason were given him for exertion, and materials are placed within his reach, to enable him by their exercise, to improve his condition. In the first place then, let every farmer mark out a small spot, from twenty to forty feet square, according to the size of his farm; this spot should be dug down from two to four feet deep. and the earth should form a bank round it; a few stout oak posts with crotches should be planted in a line along the middle of this pit, and shorter ones should be placed at the sides, to receive strong poles, on which to erect a shed of common clap-boards. Having thus cheaply made a shelter for your manure, which at once secures it from the sun, from rain, and from water running into it, while by removing a few of the boards, you can admit them when necessary; the next step is to bring to it a quantity of top earth or sods, and if your soil be stiff, a quantity of sand. These substances should be mixed, and a layer of one foot in thickness should be spread over the bottom of the pit; then cut down and collect all the weeds (before they seed) about your fence and farm, and spread another layer of *them*, of the same thickness, over the former one; then collect dead leaves, by scraping the surface of the adjacent woods, and spread another layer of them; sprinkle this last layer with all the ashes and soot you can collect about the farm; next go into your stable and cattle yard; collect all the animal manure they contain, and lay on another layer of this dung; over this spread a layer of bad fodder, waste straw, sweepings of your yard, particularly after rain, and any kind of rubbish about your buildings. You will find that your compost

heap will now be raised about five feet: but as this will probably settle, as decomposition takes place, to about three feet, you must begin again with your layers, and proceed till your pit is filled up. Should your soil be very stiff, it will be advisable to sprinkle two or three inches of sand or gravel between each of the layers, as one great recommendation of this plan is, that you may suit your manure to the nature of your soil. Should it on the contrary be light, sandy and porous, a layer of loamy clay should be occasionally introduced.

This mode of making compost manure, requires but one part out of five of stable manure, to create a fermentation through the whole mass. Should it not speedily commence, you have only to remove some of the boards during the first rain, and the moisture and the heat will soon produce the desired effect. All the materials for the compost heap, should be placed ready round your pit before you commence, as perhaps it may be advisable to mix the substances a little together, and not let them lay in such detached layers. Should the heap become very hot, the quality of your compost will be injured, unless you open the mass in dry weather. A very valuable addition to a compost heap, is pond or creek mud, where it can be obtained, together with the deposits of leaves and other trash, found in lagoons; and your committee will enumerate some of the materials, most of which are within the reach of us all, which they recommend to be collected and prepared for composts.

It is presumed as a matter of course, that every one who calls himself a farmer, carefully saves all the dung from his stock of all kinds; to increase this, your horses' stalls, and the sheds or yards of your cattle and sheep, should be kept constantly littered with either corn-stalks, refuse straw or fodder, dried leaves or shavings. This will both increase and preserve your stable manure. The materials for the compost heap, may be sand or gravel; sods of top earth from lanes and hollows; green weeds of all kinds; (and rag or hog weed is excellent) dried weeds and leaves; ashes and soot; sweeping of yards, and all kinds of rubbish; saw dust from mills; creek mud and pond trash; rotten wood and bark; tanner's bark and offal; house and kitchen offal of all kinds.

Let not the farmer be misled by the opinion that these necessary operations will consume too much of his time; let him seriously set himself to work in hauling materials to his manure pit, and he will himself be surprised to find how easily and how soon compost is made when he has a little stable manure before hand.

It is believed that one man and one boy with a horse and cart will in less than one week create a mass of compost sufficient for five acres of land, and how many idle weeks do we all spend. It will be recollected also, that the greater part of this work can be performed at leisure times; the most proper and convenient for us, appears to be immediately after laying by our drill crops, as the vegetables will then be in full luxuriance, and we have some weeks of leisure. In forming your compost, the manure from your sheep yard and poultry houses must not be forgotten, and as these are of a hot and fermenting nature, they should be spread over those layers least likely to decompose without their aid. From six to ten or twelve weeks is sufficient with proper management to reduce the compost heap to a condition fit for application, and on emptying your manure piles, care should be taken to turn and mix the heap as much as possible.

Your committee could add many others to these recommendations; but they forbear, relying both on the good sense and judgment of the Society to supply their deficiencies; and fearful of exhausting a patience so largely claimed and so liberally bestowed. In conclusion, they will only permit themselves to express a fervent hope that their labor may be useful, which will be their best reward, and that their brother farmers will show forth their faith by their good works.

The remaining subject of consideration, that of fossil manures, together with the time and mode of application of all manures to the soil, must be the subject of a subsequent report, which your committe hope to have the honor of presenting.

All of which is respectfully submitted.

THOMAS PINCKNEY, Jr.
Chairman of the Committee of Manures.

SOME OBSERVATIONS ON THE

Hessian Fly;

WRITTEN IN THE YEAR 1797, BY DR. ISAAC CHAPMAN.

Original read before the Agricultural Society of Bucks County, 14th August, 1820—Forwarded to the Philadelphia Agricultural Society, and ordered to be published in the National Recorder.

(*Concluded from page* 167)

From the 1st to the 20th of September, the flies are laying their eggs on the leaves of the young wheat, which are in a few days hatched, and the young caterpillars creep down the leaf to where it rises from the head of the plant, which is mostly a little below the surface of the ground; here they fix themselves as has been before treated of.

In that situation the caterpillars advance to their full growth, so that when very cold weather begins, they have changed into the chrysalis state; in this state they continue during the winter, fixed in the same situation at the head of the young plant; in the spring following perforate the case of the chrysalis and come forth in the fly state, in April, in the latter end of the same month, and beginning of May, as has been before stated. This completes the second generation, which lasts from the middle of September to the beginning of May following.

To place the periods of their generations and several changes in a clearer point of view, I will, in a few words, recapitulate what I have before stated.

First Generation.

1796. 1st. The eggs were laid the latter end of April and beginning of May.

2d. In a few days the eggs were hatched, and the young caterpillars appeared in May.

3d. They changed from the caterpillar state the latter end of May and beginning of June; and,

4th. The fly came out of the chrysalis the latter end of July and beginning of August, and deposited their eggs the latter end of August and forepart of September.

Second Generation.

1st. The eggs were laid the latter end of August, and in September to the 20th.

2d. In a few days the eggs were hatched, and the caterpillar appeared in September.

3d. They changed from the caterpillar to the chrysalis state, in October, in which state they continued the succeeding winter.

1797. 4th. The fly left the chrysalis state, and appeared in the latter end of April, and forepart of May.

Having thus marked the progress of this insect through their various transformations and economy for one year, and pointed out the manner in which they destroy the young plants of wheat, from thence we will endeavour to draw some conclusions, whereby we may be led to a remedy to prevent their pernicious effects.—These appear to be,

1*st. To guard against their destroying the young plants in the autumn.*

2*d. To guard against their destroying the plants in the spring.*

The first intention can be accomplished only by not sowing until the period of laying their eggs is past, before the young plants appear in leaf.

It appears the flies have generally done laying their eggs by the 20th of September; but as this point is of the greatest importance, more observations should be made; and it should be determined with the greatest accuracy, as on putting in the grain so early that the plants may have a good root in the autumn, be enabled to stand the winter, and begin to shoot up the stalk early in the spring, depends greatly the succeeding crop; and yet it is necessary that it be sown so late, that the flies cannot deposit their eggs on the leaves; and as this insect appears on many occasions to be endowed with a wonderful degree of instinct, so it appears by this unerring instinct they are directed when is the proper time to deposit their eggs, which I think will be found nearly the same every autumn.

Although I have fixed the 18th or 20th of September as the latest period of depositing their eggs, after which time I think few are laid: we will suppose it the 20th; then if the seed be sown about the 20th, all danger from the insect in the autumn will be avoided, as it will be several days before the young plants will appear above ground.

2d To guard against their destroying the plants in the spring.

Various things are necessary to be attended to, in order to accomplish this intention.

1st. The state, nature, and situation of the ground.

2d. The variety of seed wheat sown.

3d. The time of sowing.

1st. It is found that wheat sown on ground that is situated low, sheltered, and of a wet quality, is much more damaged than that on land situated higher, more exposed, and of a dryer quality; therefore, the highest and dryest ground on a farm should be chosen for sowing wheat, and the land should be well cultivated. that the young plants may have a puick growth in the autumn, and thereby be better enabled to stand the winter; and if the ground is well manured just before the last ploughing, it will keep the plants warm, and enable them to resist the frost, and make an early growth in the spring; but if laid on much earlier, the putrefactive process which takes place in the dung, and generates much warmth, will be nearly over before winter, at which time it is most necessary to cherish the young plants, and enable them to resist the inclemency of the winter frosts.

2d. The variety of wheat.

It is found that nearly all plants removed from a southern latitude to one more northerly, begin to grow earlier in the spring than those plants habited to such northern latitude, to which those of the more southern are removed: from whence it may be concluded that seed wheat brought from the southern states will make an earlier growth than that brought from the northward, which really happens, for the yellow bearded wheat was brought from Maryland to New-York, and from thence carried to other parts where the fly appeared; and the white Sicilian wheat was likewise from a southern latitude; both which varieties make an earlier growth in the spring than the yellow wheat formerly sown; and as much depends on the wheat getting an early growth in the spring, for if the plants have shot up the stalks to the height of eight or ten inches, before the insect appears in the caterpillar state, it is out of danger, the stalk having attained such a degree of hardness that the insect can make little or no impression on it. Therefore it will be better to procure seed wheat from the southern states, and of such varieties as make an early growth in the spring.

3d. The time of sowing.—This is treated under the head of the first intention; but as it is a matter of the greatest consequence, to determine precisely the period in the autumn when the flies have all or nearly all deposited their eggs, it requires further and more accurate observation, for if the young plants appear above ground before that period they will be destroyed, and if the wheat be sown very late, the winter destroys the young plants, or at least so far weakens them, that they make a late growth in the spring, and then fall an easy prey to the insect.

If a number of ingenious persons in different parts of the country could make some experiments expressly to determine this point, it would be doing a very great service, not only to individuals but to their country in general, for I think this period will be found to be near the same in every year. The experiments likely to answer this purpose would be to sow a few square yards of ground with wheat every second or third day from the first to the twenty-fifth of September, and note particularly the appearance of the insect in each day's sowing, and it might be proper to note the state of the weather between each sowing, &c.

These experiments might be made with very little trouble, they should be repeated in the same place for two or three years successively, and if they were made in a number of different parts of the country, I think they would determine the matter to a certainty; and that point being clearly ascertained, would in all likelihood, be the means of insuring to our country annually some millions of bushels of wheat more than in the present uncertainty of the matter, can be produced.

Wrightstown, Nov. 28th, 1820.

The original of which the foregoing is a transcript was written in the year 1797.—Upwards of twenty years experience has since convinced me, that the last three or four days in September, and first week in October is the best time for sowing wheat; about which time I have, for several years past, been in the practice of sowing, and though a few of the insect in the caterpillar state may appear in the young wheat, they are so few as to do but little injury.

From thy Friend,

ISAAC CHAPMAN.

THOMAS G. KENNEDY,
Sec'ry of the Agric. Soc. of Bucks' County.

FROM THE BOSTON GAZETTE.

MANURE FROM SWINE, how to increase the quantity.

The dung of swine is very rich and fat manure, and so cold as to ferment very slowly. It is so rich and oily as to be double in value to neats dung. It will render the most dry and hungry soils exceedingly fruitful in a wettish season, as I have found by experience. It resists the ill effects of drought and does most service in a hot country. By its steady and gradual supply of a rich nourishment it is parculiarly adapted for the growing of hops, pumpkins, running beans, and every plant which has long vines. Nothing can equal it for the growing of potatoes; it has produced me more than a peck in a hill, on the poorest hungry sands; or rather, I might say, straw only a little impregnated with the dung of hogs has done it. This is so strong a manure, that it answers well when mixed with a large proportion of earth, weeds, straw or other bibulous substances. It is almost incredible how great a quantity of good manure may be obtained, by supplying a hog stye with rubbish to mix with the dung. I have heard of forty loads of manure being made in the year, by means of one hog stye, and I have no doubt of its being practicable.

FOR THE AMERICAN FARMER.

TRANSPLANTING TREES.

Peter the Great transferred a forest to one of his summer residences on the Niva. The trees were dug up in winter with plenty of earth about their roots, which being frozen did not drop off. If this plan of removing trees should be much followed in a cold climate, perhaps it would be adviseable to dig round them before the frost sets in.

Care should be taken to replant the tree in the same position in which it grew: If its southern side be turned to the north, it will have new habits to learn, and may die before it has acquired them. C. J.

PISÉ.

Camden, S. C., June, 1821.

An admirable Pisé Dairy, 10 by 14, has just been completed at Statesborough, S. Carolina, and has every apperance of answering the most sanguine expectations of its worthy owner.

A CAMDONIAN.

A CHRONOMETER upon a new principle has been invented in England by Messrs. Parkinson and Frodsham. Several of these time keepers were carried out by Captain Parry on his voyage of discovery, on trial, for proof of accuracy. They were rectified to the true time at Greenwich, and on their return after a long voyage in Polar seas, and an absence of 504 days, their mean error on comparison with the observatory, is said to have been only 1 second and 8 tenths! All the others were stopped or rendered useless by the extreme severity of the frost.—Capt. P. has now gone on a second voyage of discovery, in the same regions, and relies on the new Chronometers for his reckoning. The former mean error did not amount to a half mile of distance.—*American.*

THE FARMER.

BALTIMORE, FRIDAY, AUGUST 24, 1821.

PRICES CURRENT.

Flour from the wagons, $5 to 5 12½—Whiskey from do. 27 cts. exclusive of bbl—Wheat, white, 95 cents—Red, 90 a 94—Corn, 38 a 40 cts.—Oats, 20—Rye, 40—Hay, 12 a $14—Live Cattle, $5 a 6 50—Codfish, per quintal, wholesale, $3, retail 3 50 a $4—N. England Beans per bushel $1 12½—ditto Peas, 75 cents—Plaster in stone $6 per ton—do, ground, $1 35 per barrel, 33 cts. per bushel, $8 per ton—New-Orleans sugar, $9 to $12 50—Muscovado, do. $9 a $12—American White Lead, $12 50—Ground do. 13 a 14—Linseed Oil, 75 cents—Feathers, 40 a 45 cents—Shad, new, $6—Herrings, $2 a $2 25, declining—Fine Salt, 55 cents per bushel—Ground Alum do. 55 a 60—St Ubes, 60—Cadiz, 50 a 55—Turk's Island, 75—Beef, 8 to 10 cts—Hams, 10 a 12 cents—Middlings, 10 cents—Butter, 25 cents—Peas, 50 cents pr bushel—Eggs, 12½ cts—Cheese, 8 a 10 cts per pound—Tar $2 12½—Turpentine, soft, 2 12½—Hard, 1 50 to 1 62½— } Cargo prices Pitch 2 a 2 25—Rosin, common, $1 37½ a 1 50—Varnish, 25 cents—Spirits Turpentine, 33 cents per gal.

Virginia and Maryland Tobaccoes same as last report.

Printed every Friday at $4 per annum, for JOHN S. SKINNER, Editor, by *Joseph Robinson,* at the N. W. corner of Market and Belvidere streets, Baltimore, where every description of Book and Job Printing is executed.—Orders from a distance for Printing and Binding, with proper directions, promptly attended to.